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ABSTRACT

This paper synthesizes research on how motivation influenced teachers at two school-based performance award (SBPA) programs in Kentucky and in North Carolina. The research was conducted between 1995 and 1998 by the Consortium for Policy Research in Education. SBPA programs provide teachers and other school staff with pay bonuses for the achievement of specific schoolwide educational goals. The paper focuses on teachers' reactions to SBPA programs and the degree to which teachers' motivational reactions are related to subsequent school performance. A combination of onsite interviews and survey questionnaires were used to assess teacher and principal attitudes and responses to existing programs and to determine whether the programs motivated teachers to work toward improved student achievement. The article provides a description of the programs in Kentucky and North Carolina, exploring whether those schools with more motivated teachers were more successful in improving student achievement. The report also examines whether teachers' motivational responses were predictive of schools' success in meeting their student achievement goals. The findings suggest that successful SBPA programs are complex undertakings that require attention to all five elements of the motivation model--expectancy, instrumentality, valence, teacher competencies, and enabling conditions--for it to work. (Contains 55 references, 13 tables and 1 figure.) (RJM)

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SCHOOL-BASED PERFORMANCE AWARDS: RESEARCH FINDINGS AND FUTURE DIRECTIONS

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SCHOOL-BASED PERFORMANCE AWARDS: RESEARCH FINDINGS AND FUTURE DIRECTIONS

INTRODUCTION

Building on a strong foundation of research and experience, in the 1990s educational policymakers undertook sophisticated comprehensive educational reform efforts. The centerpiece of these reforms was the creation of state educational standards and assessments, and the focused use of state and local resources to support the achievement of these standards. As part of these reforms, a number of states and districts have embraced the idea of performance-based accountability (Fuhrman, 1999), in which rewards (and sanctions) are used to motivate measurable improvements in student performance. Learning from the failure of efforts in the 1980s to link pay to performance at the *individual teacher* level, states and districts now are introducing policies that link pay to performance at the *school* level. This paper synthesizes research on the motivational effects on teachers of two such school-based performance award (SBPA) programs, in Kentucky and Charlotte-Mecklenburg, North Carolina. The research was conducted by the Consortium for Policy Research in Education between 1995 and 1998.

What are School-Based Performance Award Programs?

School-based performance award (SBPA) programs provide teachers and often other school staff with pay bonuses for the achievement of specific school-wide educational goals. These programs differ from individual performance pay in that all teachers in a school receive the bonus based on meeting an objective, predefined school goal, rather than individual teachers receiving a bonus based on individual teacher performance, as in merit pay programs.

SBPA programs are meant to provide an incentive for teachers to work toward improved student performance, while avoiding the divisiveness that can accompany individual performance pay. The group nature of the goal is designed to encourage teachers to work together and to provide an important symbolic focus on key educational outcomes (Odden & Kelley, 1997). The interest in SBPA programs in the education sector parallels the rising use of group performance awards in the private sector. In that

sector, the reported results of group rewards has generally been positive (Heneman, et.. al, in press, McAdams and Hawk, 1994). The research reported here is an assessment of the effect of these programs in public schools.

Specifically, this paper focuses on the motivational reactions of teachers to SBPA programs and the degree to which teachers' motivational reactions are related to subsequent school performance as defined by the program. The research does not address the question of whether SBPA programs "cause" improvements in student achievement. To do so would require the use of an experimental or quasi-experimental research design, which was not possible given the absence of equivalent or nearly equivalent states or districts to serve as comparisons. Instead, we used a combination of on-site interviews and survey questionnaires to assess teacher and principal attitudes and responses to existing programs, and to determine whether the programs created conditions likely to motivate teachers to work toward improved student achievement. We also aggregated these responses to the school level in order to examine whether, in Kentucky and Charlotte-Mecklenburg, those schools in which teachers were more motivated, on the average, were more successful in improving student achievement. In this article we provide a description of these programs and a summary synthesis of the methodology and findings from our studies of teachers' motivational responses to the programs (Heneman, 1998; Heneman & Milanowski, 1998; 1999; Kelley, 1996; 1998a; 1998b; Kelley, Conley & Kimball, 1999; Kelley & Protsik, 1997). We also provide a report for the first time about how teachers' motivational responses were predictive of schools' success in meeting their student achievement goals.

The next section provides a brief overview of the Kentucky and Charlotte-Mecklenburg SBPA programs. Both programs have undergone modifications since 1998; the summaries reflect program design during the research period.

The Kentucky SBPA Program

Created in 1990 as a part of a court-ordered overhaul of the education system, the Kentucky accountability program provided rewards to schools for improved student performance, and sanctioned schools for declining performance. Performance was measured using an index developed from student

assessment scores in seven academic subjects (reading, writing, math, science, social studies, arts/humanities, and vocational/practical living) and school-level indicators such as student attendance, retention, dropout rates, and successful transition to adult life (see Kelley, 1998, Kelley and Protsik, 1997). The school performance index, the Kentucky Instructional Results Information System (KIRIS), was administered in grades 4-5, 7-8, and 11-12, and consisted of portfolio entries, open-response, and multiple choice questions. Students scored in one of four categories on the assessment: novice, apprentice, proficient, and distinguished. The academic portion of the KIRIS index was calculated based on the proportion of the school's students that scored in each category multiplied by a weight that gave more credit to performance at the higher levels.

Beginning in 1991-92, the state set a series of 2-year goals for each school to increase its KIRIS score 10% of the distance between the school's baseline score (initially the 1991-92 score, reset every two years) and a long-term target (equivalent to 100% of students scoring at the "proficient" level). If schools exceeded their goal, they were designated "reward" schools, and received a pool of reward funds that could be used for any purpose, including salary bonuses, according to a vote of the school's certified staff. The reward amounts provided to each school were based on the degree to which the school exceeded its goal and the number of certified staff in the school. The maximum reward amount was 10% of the average teacher salary of the five Kentucky districts with the highest average salary ($3,690 for Cycle 1), although the program was never funded at this level. The minimum amount was 50% of this maximum. Certified staff at each reward school could decide how the award was to be used, including whether teachers only, or teachers and support staff, would be paid bonuses. In the first accountability cycle, 39% of schools exceeded their goal and received performance awards, and teachers in over 98% of award schools voted to use all or part of the money for salary bonuses. In the second cycle, 40% of schools exceeded their goal, and 88% of the schools voted to use all or part of the money for salary bonuses (Kentucky Department of Education, 1996; Reidy, 1995, Personal communication with Brian Gong, Associate Commissioner of Education, Kentucky Department of Education, August 1, 1997). The average bonus paid to teachers at the end of Cycle 2 (1995-96) was approximately $2,600.

For schools that failed to exceed their goal, there were four non-award categories. Schools that met but did not exceed their goal were labeled "successful," and received neither rewards nor sanctions. Schools that improved over their baseline but failed to reach the target, "improving" schools, had to submit a school improvement plan to the state, indicating how they planned to meet their achievement goals in the future. Schools that dropped below baseline were designated "in decline" and were assigned a distinguished educator, received improvement funds, and had to submit a school improvement plan. The distinguished educator was an exceptional educator from the state of Kentucky hired and trained by the state to provide technical assistance to schools to help them meet accountability goals. Schools that dropped more than five points below baseline were designated "in crisis." They were treated like decline schools, with one notable exception. The distinguished educators assigned to crisis schools had broad powers to terminate teachers and override school site council decisions if they deemed it appropriate (Kentucky Department of Education, 1995). In the first biennium of the program, the crisis category was suspended due to concerns about the reliability of the assessment instrument. The crisis category was reinstituted for the second biennium; 177 were designated in decline and nine schools were designated in crisis (Kentucky Department of Education, 1995; 1996; Lindle, 1999). By the end of the cycle, 88% of these schools had improved enough to receive rewards, suggesting that "the DE program would appear to be a smashing success" (Lindle, 1999, p. 11).

Our research, conducted between 1995 and 1998, examined the program as described above. In 1998, a variety of factors led to a restructuring of the assessment and accountability program (Blackford, 1997, Lawton, 1997, Strecklow, 1997). The new program includes a new assessment with stronger links to nationally norm referenced tests, and changes in the nature of rewards and sanctions, including the elimination of pay bonuses for teachers in favor of rewards paid directly to schools (Cody, 1998; Lindle, 1999).

The Charlotte-Mecklenburg SBPA Program

Under the direction of a new superintendent, the Charlotte-Mecklenburg School District (CMS) established its Benchmark Goals Program (BGP) in 1991 as a way of attempting to reverse a record of

low student achievement and limited success with minority students (Heneman, 1998). The BGP became operational in 1992-93, with annual plans for implementation and management extending through the 1996-97 school year. In 1996-97, the BGP entered a transition period due to the hiring of a new superintendent and the beginning of a new statewide accountability program for school districts called the ABC's program, a quasi-acronym for accountability, emphasis on basics and high standards, and maximum local control. This program changed many of the aspects of the BGP for the 1997-98 school year, but the major elements of the original BGP, described below, remained intact during the period of our study.

In the program, improvement goals for student achievement were set in nine areas: reading, writing, math, social studies, primary grade readiness, higher level course enrollment, end of course subject mastery, attendance, and dropout rates. Depending on grade level composition, schools had between 14 and 44 subgoals. Student achievement in cognitive areas was assessed by the state standardized multiple-choice tests. Initial performance baselines were established for each school in 1991-92, with annual improvement goals reset each year by the district. Maintenance goals were established in instances in which the school was already performing at a high level. There were separate improvement goals for white, African-American, and other students; maintenance goals were common for all students.

Schools received points for achieving each subgoal to a maximum of 100 points (e.g., if a school had 25 subgoals, each subgoal was worth 4 points). A fully met subgoal received 100% of the points, a partially met goal received 75% of the points, and an unmet goal received no points. Points earned on subgoals were summed to form a school's total score. Schools that earned 75 to 100 points were designated as "exemplary;" schools that earned 60 to 74 points were designated as "outstanding." Schools that earned fewer than 60 points were in the no bonus category (there was no special designation). Teachers in exemplary schools received $1,000 and support staff received $400. Teachers in outstanding schools received $750 and support staff received $300.

There were no formal sanctions for schools that failed to achieve the accountability goals for any one time period. However, schools with chronically low achievement could be placed in the district's Priority Schools program, and in 1995-96, 14 schools were so designated. Guided by assistance from the district, these schools prepared school improvement plans, identified resources needed to improve school performance, and received staff development from a team of university researchers.

Motivation Model

Qualitative research on the motivational effects of SBPA programs on teachers in Kentucky (Kelley & Protsik, 1997) suggested that expectancy theory (Vroom, 1964) and goal setting theory (Locke & Latham, 1990) could be useful in understanding teacher motivational response to SBPA programs. Figure 1 shows the resulting model of motivation we used to structure further research. The model depicts factors involved in teacher motivation to work toward student achievement goals. As previously described (Heneman, 1998), the central elements of the model are teachers' perceptions about the degree to which their own efforts will produce student performance as defined by the SBPA program (the expectancy perception), teachers' perceptions of the probability that meeting the student achievement goal will lead to desirable outcomes such as receiving a bonus (the instrumentality perception), and the desirability that teachers attribute to these outcomes (the valence perception).

Insert Figure 1 about here

Thus, in this model, teachers' motivation is a function of expectancy, instrumentality and valence. Starting with expectancy (the effort to achievement link), the teacher's decision to expend effort is determined by beliefs about the likelihood that the teacher's effort (its intensity, focus and persistence) will lead to the attainment of student achievement goals. The more a teacher perceives that working hard will pay off in meeting the goals, the greater the teacher's motivation to expend the effort needed to do so. Moreover, borrowing from goal-setting theory (Locke & Latham, 1990), student achievement goals that are clear and specific will focus teachers' efforts and foster stronger expectancy perceptions.

Teachers' beliefs about the effort-student achievement link are influenced by their beliefs about their own competencies and the presence of enabling conditions. Competencies refer to teacher

knowledge and skills relevant to helping students meet the achievement goals. Enabling conditions are the organizational conditions that facilitate the meeting of student achievement goals. Examples include principal support, professional development, and feedback about progress toward meeting the goals.

The instrumentality link is also important in understanding the motivational impacts of SBPA programs. Instrumentality is the perception that meeting (or not meeting) student achievement goals will lead to the outcomes associated with the program (e.g. receiving a pay bonus, experiencing public criticism for failing to meet improvement goals). To the extent that teachers believe that consequences they value have a high probability of occurrence as a result of meeting the goals, they will be motivated to expend effort. Similarly, to the extent that they believe that failure to achieve the goals will result in consequences that they disvalue, they will be motivated to try to achieve the goals. The model thus suggests that outcomes will motivate to the extent that teachers see them as highly likely to occur as a result of achieving (or failing to achieve) the goals.

Finally, teachers must value the outcomes or consequences. Examples of positively valued (desirable) outcomes of SBPA programs might include receiving a bonus, public recognition for achieving student achievement goals, and a sense of accomplishment from having students reach the goals. Negatively valued (undesirable) outcomes might include public criticism if student achievement goals are not met, and threats to job security. Individual teachers are likely to vary in their assessment of the desirability of any one outcome. Some outcomes may even be viewed as desirable to some and undesirable to others (e.g., a degree of stress may be viewed as negative to some teachers, and as producing a positive, stimulating work environment to others).

The motivation model has important implications for the design of, and context for implementing SBPA programs. Policymakers need to ensure that the outcomes associated with reaching accountability goals are highly valued by teachers, and are seen as highly likely to occur if the goals are reached. They must also try to minimize likely negative consequences of trying to reach the goals (such as higher stress), or ensure that the positive outcomes "outweigh" the negative outcomes. And attention must be paid to

teacher competencies and to providing enabling conditions that foster teachers' beliefs that their efforts will lead to goal achievement.

Using this conceptual model, our research sought to address two connected issues. First, what are the motivational responses of teachers to an SBPA program? And second, are teachers' motivational responses predictive of their schools' subsequent success in meeting student achievement goals?

RESEARCH DESIGN AND METHODOLOGY

Teachers' Motivational Responses

Mixed qualitative/quantitative research methods were used to study the motivational effects of SBPA programs in Kentucky and CMS. The research design and methods are summarized here; a more detailed description can be found in Kelley, Heneman & Milanowski (1999).

The research was conducted between the beginning and the end of a single program cycle in the two jurisdictions. This allowed us to frame our interviews and survey questions in terms of that performance cycle, and to link perceptual data to student achievement outcomes at the end of the cycle. We began data collection by conducting interviews with teachers and principals in schools that varied by student socioeconomic status, school level, grade level, and previous school success in meeting student achievement goals. Interviews were conducted in 16 schools in Kentucky in 1996 (see Kelley, 1998) and 12 schools in CMS in 1997 (see Heneman, 1998). Researchers spent a half-day in each school, conducting 45 to 60 minute interviews with the principal and a sample of teachers, particularly those who taught in the accountability subjects/grades. Interviews were taped, transcribed, and analyzed to provide input into the development of the survey instruments.

Separate survey instruments were developed for teachers and principals in Kentucky and CMS. Where possible, scale items were adapted from preexisting survey instruments. Common questions were included across instruments, although the questions were tailored to be descriptive of the programs operating in each research site. The survey included questions designed to measure the various constructs of the motivation model (perceptions of goals, expectancy, instrumentality, valence, teacher competencies, and enabling conditions).

The surveys were administered to CMS teachers in Spring, 1997 to 25 teachers selected at random from all 120 schools. If a school had 25 or fewer teachers, all of the teachers in the school were selected. 1150 teachers responded to the questionnaire for a 39 percent response rate. The respondents matched the CMS teacher population relatively well by gender, race, and teaching service, but elementary teachers were somewhat over-represented and high school teachers under-represented.

The questionnaires were administered to Kentucky teachers in Fall, 1997. Respondents were selected by means of a multi-stage sampling process designed to provide representation from each performance category and grade level (see Kelley, Heneman & Milanowski, 1999). As in CMS, 25 teachers in each school were selected, or for smaller schools, all of the teachers in the school. The total number of useable responses was 1,750, for a response rate, relative to the number of questionnaires sent, of 30.9%. At least one response was received from 261 of the 262 schools sampled. In terms of demographics, respondents were a good match to the population of teachers in Kentucky.

Motivation and Student Achievement

In addition to examining the effects of SBPA programs on individual teacher motivation, we also explored the question of whether teachers' motivation affects subsequent school performance, as defined by the SBPA program. To investigate this, teacher motivational responses were aggregated to the school level, then used to predict subsequent school performance at the end of that accountability cycle. The global hypothesis drawn from our motivational model was that the greater the average teacher motivation, the greater the school's success in improving student achievement levels.

The motivational constructs for which school-level averages were calculated included teachers' individual expectancy perceptions and the expected value of outcomes (valence times instrumentality). The expected value of the bonus alone was calculated, along with an expected value for each of four outcome factors associated with achieving, striving to achieve, or failing to achieve program goals. The expected value of each outcome in the group was calculated by multiplying the desirability rating times probability of occurrence, then summing the products within each factor grouping. Then, the individual scores were averaged across teachers within each school.

Whenever individual-level data are aggregated to form a score representing a higher-level entity such as a school, the question of the degree of agreement in the responses of the individuals arises. Here we are using the within-school averages of teachers' ratings of their motivational responses to represent the average level of motivation within each school. Within-school variability in individual teachers' responses leads to sampling error in the estimate of each school-level average. This is a form of unreliability that is likely to attenuate the relationships between the school-level averages of the motivational constructs and the measures of school performance.

School performance was defined by the SBPA program rules. For CMS, school performance was measured as the number of Benchmark Goals points each school achieved in the 1996-97 school year, as reported by the District. For Kentucky, the indicator was the change in the KIRIS index between the baseline (essentially the KIRIS index from Cycle 2) and the index for Cycle 3 (consisting of the average of the 1997 and 1998 indices).

In these analyses, we controlled for a number of school characteristics that might be expected to affect how well schools did on the accountability indices. These included school size, operationalized as the natural log of enrollment, and the percentage of students receiving free and reduced price lunch. For the Kentucky analysis, the value of the Cycle 2 KIRIS index was also included, because it may have been easier for schools with relatively low levels on the Cycle 2 index to improve enough to be a reward school than it was for schools with higher levels on the index. In CMS, many of the improvement goals underlying the Benchmark Goals points are adjusted by the district to account for this possibility, so previous school performance was not used as a control variable.

FINDINGS: TEACHERS' MOTIVATIONAL RESPONSES

Teacher Perceptions of School Performance Goals

Our interviews with teachers and principals suggested that the Kentucky and CMS SBPA programs were reasonably successful in getting teachers to understand and be committed to achieving the goals. All of the teachers we interviewed in both jurisdictions were aware of and had a significant degree

of understanding of program goals. In both Kentucky and CMS, many teachers indicated that the presence of the SBPA program provided them with clear direction and focus linked not just to covering the material, but to reaching measurable student outcomes. Many principals and teachers named accountability and goal focus as major positive effects of the SBPA programs. While teacher commitment to these goals varied across schools, grade levels, and subjects, many of the teachers we talked to indicated that they had made changes in teaching practice to align curriculum and instruction with program goals. In the most successful schools that we studied, changes to teaching practice occurred school-wide. Despite these substantial impacts, a degree of perceived goal conflict was expressed by some of the teachers. Among the competing goals mentioned were the need to emphasize basic skills, the importance of instilling a "love of learning", or pursuing a different program emphasis, such as in magnet schools (Heneman, 1998, Kelley, 1998).

The survey results were mostly consistent with the interview findings. Teachers in both jurisdictions were asked about their commitment to achieving the goals, how well they understood the goals, and whether these goals conflicted with other important educational goals. Table 1 shows the means and standard deviations on the scales we developed from these items. (See Appendix A1 for information on the items included in the scales and their reliabilities.)

Insert Table 1 about here

As can be seen, on average, teachers reported a high level of commitment and a reasonably high level of understanding of the goals. Also, teachers in both jurisdictions reported a modest degree of conflict between the accountability goals and other important educational goals. Nonetheless, reported levels of goal commitment and clarity are encouraging in that policy implementation research has repeatedly underscored how difficult it is for policy to penetrate teaching practice (Fullan, 1991; Odden, 1991).

Teachers in both jurisdictions were also asked about the level of performance they were striving for during the accountability cycle. Table 2 shows the percentages of respondents who indicated they were trying to attain the different levels of achievement established by each program. Inspection of the

table reveals that in both jurisdictions, the vast majority of teachers indicated they were trying to reach their school's student achievement goals. Over 87% were trying for "Outstanding" or "Exemplary" status in CMS, and over 77% for "Successful" or "Reward" status in Kentucky. Few indicated that they were not trying or were trying only to avoid performance declines. Moreover, goal attainment experience in the last accountability cycle had a strong effect on performance targets. Teachers in CMS were more likely to report trying for "Exemplary" status if their school had earned (79.6%) versus not earned (68.4%) a bonus in the previous year. The effect of prior winning was even greater among Kentucky teachers, with "Reward" status sought by many more teachers in schools that had won (72.2%) than had not won (41.4%) a bonus for the previous cycle.

Insert Table 2 about here

The use of bonuses may help to increase commitment to goals and teacher's understanding of them by reinforcing their presence and signaling their importance. To investigate this possibility, we multiplied bonus valence times instrumentality to create an expected value of the bonus. Goal commitment and goal clarity were regressed on this expected value and on several control variables. Significant positive coefficients were obtained for the effect of the expected value of the bonus on goal commitment in both jurisdictions, and for goal clarity in the CMS sample. (The goal clarity coefficient in the Kentucky analysis just missed significance at the .10 level.) These results suggest that bonuses can play a positive role in enhancing teacher understanding and commitment to the goals.

A potential threat to goal commitment over time is the difficulty of meeting ever-rising goals for successful schools. In both SBPA programs, for schools that do improve, the absolute level of student achievement that must be produced to meet future goals will be higher in each succeeding accountability cycle. For schools that do not improve in a cycle, the goal for the next cycle does not increase much, if at all, in terms of absolute student performance. To assess the impact of program characteristics on perceived goal difficulty, teachers were asked whether they thought the goals were harder this cycle than last, and would be harder yet next cycle. Table 3 shows the percentages of teachers who indicated that future goals would be more difficult, by the reward status of their school in the last accountability cycle.

It can be seen that in both jurisdictions, teachers in reward schools reported greater goal difficulty than teachers in nonreward schools.

Insert Table 3 about here

Teacher Perceptions of Outcomes: Valence and Instrumentality

Valence. Our analysis of teacher interview responses indicated that teachers associated a variety of outcomes with the programs (see Heneman, 1998; Kelley, 1998; Kelley & Protsik, 1997). Based on these findings, 17 potential outcomes directly relevant to experiences under the SBPA programs were identified and included in the questionnaires sent to Kentucky and CMS teachers. Teachers rated the desirability of each outcome on a 1-5 scale. To determine if there were meaningful clusters of outcomes, the ratings were factor analyzed (principal components, varimax rotation). All outcomes except one ("participation in meaningful education reform") had a high (> .50) loading on only a single factor and were retained. The factors were labeled Goal Attainment Rewards, Learning, Sanctions, and Stress. Means and standard deviations for the 16 outcomes comprising these four factors are shown in Table 4 (see Heneman & Milanowski, 1999).

Insert Table 4 about here

It can be seen that Goal Attainment Rewards include both extrinsic (bonus, school improvement funds, public recognition) and intrinsic outcomes (satisfaction from meeting goals and from improved student performance). These results are consistent with our interview findings. The Learning outcomes are predominantly intrinsic in nature, focusing on both learning for the students and for the teachers. The Sanctions outcomes were rated quite low in desirability, particularly in Kentucky where the sanctions in reality were more powerful than they were in CMS. The Stress outcomes were uniformly rated very low in desirability, a finding that parallels the interview findings.

Finally, we should note that outcome desirability ratings were not strongly related to teachers' age, years of experience, salary level, school level, percent of students receiving free and reduced price lunch, and whether a school had met its goals in the previous award cycle. Very few statistically significant correlations between desirability ratings and these variables were obtained, and of those that

were significant their size was very small (i.e., $r < .15$). Thus, these desirability ratings appear to be quite generalizable across teachers within each jurisdiction.

In the interviews, teachers were asked about the likelihood of various outcomes if their school met, or did not meet its student achievement goals. We also explored the likelihood of outcomes occurring as a consequence of trying to reach the student achievement goals. On the survey, an instrumentality perception was gathered for each of the 17 outcomes. Depending on the outcome, teachers were asked to indicate the probability of occurrence if the school met its goals, did not meet its goals, or the likelihood of occurrence in the process of trying to meet school goals. The probabilities, shown in Table 5, were assessed on a 0% to 100% scale, in 10% increments.

Insert Table 5 about here

The probabilities of the Goal Attainment Rewards occurring if a school met its goals were perceived to be very similar in Kentucky and CMS, except for the bonus, which was much higher (72.8%) in CMS than in Kentucky (54.8%). This may be due in part to uncertainty surrounding the future of the Kentucky SBPA program at the time of our survey. The perceived probabilities of the Learning outcomes were also similar for Kentucky and CMS teachers. For the Stress outcomes, Kentucky teachers reported higher probabilities of increased pressure and stress and working more hours. Perceived probabilities of outcomes associated with not meeting goals (i.e., Sanctions outcomes) were substantially higher for Kentucky teachers, probably due to the formal sanctions components of the Kentucky program.

Correlations between probability perceptions and teacher age, years of experience, salary, school level, percent free and reduced lunch, and previous reward status were examined. Most of the correlations were not statistically significant, and of those that were significant their size was quite small (i.e., $r < .15$). The one exception was a moderate and significant correlation ($r = .23$ for CMS teachers, $r = .30$ for Kentucky teachers, $p < .05$) between having earned a bonus in the previous cycle and the probability of receiving a bonus for meeting school goals in the current cycle.

The interview and survey findings converged and complemented one another. The most striking finding in both program sites was the relatively low perceived probability of receiving a bonus when

school goals are met. Moreover, there was only a moderate correlation between perceived probability of receiving the bonus for achieving the goals and having received a bonus in the past award cycle. These data suggest teacher skepticism regarding the bonus portion of the program. Even reaching goals and winning bonuses last time was not a very strong influence on believing that history would repeat itself. A second striking finding was that Kentucky teachers, relative to CMS teachers, perceived much greater probabilities of occurrence of negative outcomes for trying to meet, and for not meeting program goals. Specifically, more work hours and more pressure and stress were seen as more likely than any of the positive outcomes. This may have been due to differences in the difficulty of achieving goal targets between the two programs, and to the more highly politicized context of the Kentucky program. Kentucky teachers also saw a higher probability of sanctions for poor performance than CMS teachers, reflecting the stronger sanctions provided by the Kentucky program.

In summary, we clearly and convincingly found that an SBPA program is not just a bonus program; rather it is one element in an interrelated system of rewards, opportunities, and demands that influences teachers' jobs and lives in a multitude of ways, leading them to experience (and form values about) a variety of both extrinsic and intrinsic outcomes. We also found that most teachers viewed receiving a bonus as appropriate and desirable, and not in conflict with other outcomes traditionally seen as motivating to teachers. However, we were surprised to find, as discussed later, low levels of desirability and motivation being reported for the bonus program overall. This seeming inconsistency was found to be a reflection of less than favorable attitudes about components of the SBPA program, and how it is administered, rather than of the bonus per se.

The Motivational Role of the Bonus

Given the central role of bonuses in SBPA programs, and the lack of evidence available to date about their motivational impact on teachers, we explored teachers' reactions to the bonuses in depth. Part of this exploration occurred during our interviews with teachers in the two programs. From these interviews, we learned that:

- Teachers felt it was appropriate to receive bonuses, and that receiving a bonus was deserved.
- The teachers varied in how meaningful the size of the bonus they could receive actually was, especially after deductions for taxes.
- The teachers varied in how much the possibility of earning a bonus motivated them to improve student achievement, or whether an even larger bonus would motivate them more.
- Teachers were skeptical that earned bonuses would actually be paid, due to past experiences with actual reneging on bonus payments or beliefs that the funding for the bonuses would not be continued.
- Teachers varied as to whether they wanted the bonus part of the SBPA program to continue.
- The meaning of the bonus varied, with teachers variously viewing it as an appropriate "thank you", a formal recognition, reimbursement for personal expenditures on school-related items, a reward that allowed for the purchase of desired goods, or that it was simply irrelevant.
- Teachers in Kentucky found that having to decide among themselves how to divide up the bonus money among teachers and staff was a divisive process that created tension within and between schools (see also Abelmann & Kenyon, 1996).
- Awards paid as salary bonuses appeared to have more visibility than awards paid as school improvement funds. Kelley, Conley, and Kimball (1999) found that Maryland teachers were much less cognizant of the award than Kentucky or CMS teachers. Unlike Kentucky and CMS, the Maryland program paid awards in the form of school improvement funds.

Teacher Perceptions of Program Fairness

The surveys also included a set of items dealing with the perceived fairness of various aspects of the SBPA programs. Table 6 shows the means and standard deviations of teacher responses to these scales; items used to form the scales and reliabilities are shown in Appendix A2.

Insert Table 6 about here

While CMS teachers on average expressed weak agreement that it is fair to hold teachers accountable for student performance, and to pay bonuses to teachers when student performance improves, Kentucky teachers on average tended to disagree with both ideas. Teachers in both jurisdictions were just below the neutral point with respect to whether they felt their school had a fair chance of winning the award and that the program was run fairly. Additional analysis revealed that teachers in schools that had consistently won awards had slightly more positive perceptions of fairness than teachers in schools that

had not won awards, although the averages for the program fairness scale were still below the neutral point for both jurisdictions. This suggests that many teachers had some serious reservations about the fairness of these programs.

To delve more deeply into teachers' reactions to the program and to the bonus, two additional sets of analysis were conducted. The first sought to predict teachers' motivational response to the program, whether they felt the bonus part of the program should continue, and their probability of withdrawing from the program. The independent variables pertained primarily to various elements of perceived fairness of the program. The analysis, described in more detail in Heneman and Milanowski (1999), was conducted among a subset of Kentucky teachers.

On average the teachers did not report being highly motivated by the bonus program, but were more neutral in their intentions to withdraw from the program and their desire to see it continue. It should be remembered that these data were collected at a time of contention and uproar about the KIRIS program (Blackford, 1997, Lawton, 1997, Strecklow, 1997), and it is unknown whether more favorable attitudes would have been expressed had the data been collected earlier. There was considerable variability in teachers' overall attitudes about the bonus program, however, and several factors accounted for a significant portion of this variability. Teachers were both more motivated by the program and wanted it to continue if they were dissatisfied with their current salary, felt that use of bonuses and the bonus process was fair, and felt that teachers should decide how to divide up the bonus money. In contrast, teachers' withdrawal intentions were related to perceptions that the bonus process was unfair, that their school did not have a fair chance to meet its goals and the existence of unfair winners (Heneman & Milanowski, 1999).

A second set of analyses, conducted among CMS teachers, examined longitudinally the factors causing job withdrawal (see Heneman & Milanowski, 1998). The independent variables were salary, satisfaction with salary, whether the teacher was working in a bonus-winning school, perceptions of the fairness of the bonus, and intention to leave because of the SBPA program.

The analysis of actual teacher withdrawal response in CMS showed several significant predictors of withdrawal. Teacher salary was significantly and negatively related to total turnover (leaving the district and transferring schools), and the negative pay coefficients for separate analyses of leaving the district and transferring schools just missed being significant. Non-bonus schools had significantly more total turnover, due to significantly greater teacher transfers out of those schools. Intent to leave the job within the next two years because of the award program had the strongest impact of all the variables on both leaving the district and on transferring schools. In short, both teachers' salaries and their experiences with the SBPA program, including whether or not they were in bonus-winning schools, influenced their actual withdrawal behavior.

Teacher Expectancy Perceptions

The interview data in Kentucky and CMS suggested that teacher expectancy varied across teachers and schools. Schools that had achieved award status in the past were likely to have higher teacher expectancy than that had failed to improve. The Kentucky data were also analyzed to examine differences across schools with various award histories. These data suggested that award schools, in which teacher had relatively high levels of teacher expectancy, were characterized by principal and district support for the goals of the program, high quality professional development linked with the accountability program, meaningful collaboration among teachers, and connections to external professional communities. Non-award schools, in which teachers had relatively low levels of teacher expectancy, were characterized by an absence of the conditions described above, and multiple or conflicting goals that competed with the goals of the accountability program (Kelley, 1998).

Teacher surveys administered in Kentucky and CMS were designed to further illuminate important organizational conditions related to teacher expectancy. Two measures of expectancy were examined: individual teacher expectancy and teacher group expectancy. Individual teacher expectancy is a measure of the extent to which a teacher believes that her efforts will result in achievement of school accountability goals. Teacher group expectancy is a measure of the extent to which an individual teacher

believes that she and her colleagues *working together* can achieve the school accountability goals. Table 7 shows the average expectancy scores for Kentucky and CMS teachers.

Insert Table 7 about here

Expectancy levels were not particularly high in either jurisdiction, though the averages were considerably lower in Kentucky. In Kentucky, teachers on average did not report even a 50% probability that individual effort would lead to performance sufficient to achieve reward status, or even avoid being classified as a school in decline. They were, however, more positive about the likelihood that if they and their colleagues worked together, the school would achieve reward status or avoid sanctions.

The level of expectancy varied greatly across teachers. According to our motivational model, potential determinants of teacher expectancy include both teachers' assessments of their own skills and capacities and their assessments of whether important enabling conditions are present. Using the survey data, we explored the degree to which these factors influenced teacher expectancy in Kentucky and CMS (see also Kelley, 1999). Four types of independent variables were included in the analysis: school demographics, organizational context, teacher attitudes, and teacher characteristics. In both Kentucky and CMS models, demographic variables were included to control for the effect of differences in school level and prior experience with the reward program (e.g., prior achievement of award status), school size and the percent of students receiving free or reduced-price lunch.

Organizational context variables included feedback, alignment, professional community, teacher participation in decision making, principal support, and goal conflict. All context variables represent equivalent constructs in Kentucky and CMS, except that additional professional community items were added to the Kentucky survey, and are included in the professional community variable for Kentucky in Model 2. Teacher attitude variables included teacher perceptions of program fairness and goal clarity. Teacher skill variables include years of teaching experience and highest level of education completed. A description of the items included in the various scales used in the analysis is found in Appendix A3.

Table 8 contains the results of the regression analyses for individual expectancy in Kentucky and CMS. Regression analyses of group expectancy were also run; findings are similar to the individual

expectancy variable, and are therefore not reported here (see Kelley, 1999). Variables found to have a significant effect on expectancy in both jurisdictions include feedback, goal conflict, school management, leadership and culture, and the perceived program fairness.

Insert Table 8 about here

Feedback had the strongest effect on expectancy. Feedback involves the ability to receive and interpret results of past assessments, and use this information to refine curriculum and instructional programs. Goal conflict had a consistently significant dampening effect on individual teacher and teacher group expectancies. Goal conflict is the presence of organizational goals that compete with the goals of the accountability program. Competing goals can have a variety of causes. From the qualitative research we found schools with academic programs which ranged from very weak to very strong with a different emphasis from the accountability program. For example, teachers in magnet schools indicated that the presence of a strong magnet emphasis limited their ability to focus on the goals of the accountability program.

Principal support had a positive effect on expectancies in CMS, and professional community had a positive effect in Kentucky. Professional community may have a stronger impact in Kentucky because the accountability program itself had a slightly different focus. The CMS program required less change in teaching practice, and so professional support was less important to school success. Among the teacher attitude variables, program fairness stood out as a strong predictor of expectancy. Fairness reflects the perception that the program is administered fairly, and that each school has an equal chance of doing well in the program. Interestingly, measures of teacher knowledge and skills, goal clarity, alignment, and student socioeconomic status (SES) were not found to be significant predictors of teacher expectancies.

Findings: Teacher Motivational Response and School Performance

School performance was regressed on the control variables, expectancy, and the expected value of outcomes. The results are shown in Table 9. (Means, standard deviations, and intercorrelations of the variables are shown in Appendix A4.) Along with a controls-only model, six regression models were estimated to reflect the six different treatments of expected value of outcomes (bonus only, goal

attainment only, learning outcomes only, sanctions only, stress only, and all four factors together). These separate analyses allowed us to probe for potentially different effects of each type of outcome. Only additive model results are shown, since the multiplicative terms (expectancy times expected value) did not significantly increase variance explained.

Insert Table 9 about here

The controls-only model accounted for significant variance in school performance, but adding the variables representing teacher motivation significantly increased the proportion of variance explained. In all models, average expectancy had a positive coefficient of substantial magnitude, and was significant at the .01 level. Thus, the higher the average teacher expectancy, the more Benchmark Goals points a school achieved (CMS) or the greater the increase in the KIRIS index (Kentucky). However, the expected value of outcomes variables had relatively small coefficients, and some had unexpected signs. We expected that schools in which teachers had on the average higher expected values for the bonus, goal attainment, and learning outcomes would perform better, controlling for expectancy. These expectations were not born out. All of these outcome expected values had either insignificant, or significant but negative coefficients.

With respect to the "sanction" outcomes, again the coefficients were small and not statistically significant. This result does not support the expectation that schools in which teachers, on the average, perceive these outcomes as having greater expected "disvalue" perform better. Finally, with respect to the stress outcomes, the coefficients were again small, and only statistically significant for the CMS schools. The negative signs are consistent with the expectation that schools in which teachers disvalue these experiences and see them as a likely consequence of trying to meet the goals are likely not to perform as well. Similar analyses done using only elementary schools (n=81 for CMS, n=83 for Kentucky) did not show any substantially different results from those reported above.

Overall, these analyses strongly suggest that between-school differences in expectancy are related to the success of schools in improving student performance as defined by the school-based performance award programs in each of these sites. However, between-school differences in the degree to which

teachers value and expect to receive the various outcomes, including bonuses, associated with the goal achievement appear to be mostly unrelated to differences in school goal achievement. These latter results are contrary to our theoretical expectations.

STRENGTHS AND LIMITATIONS OF STUDY METHODS

These results should be interpreted within the context of the strengths and limitations of the study methodology, and of the specific designs of the SBPA programs studied. On the strength side, this study is characterized by construction of a teacher motivation model to serve as a guiding framework to study design and measurement, using a predictive design to assess the relationship between teacher motivation and student achievement, large samples from multiple research sites, a meshing of qualitative and quantitative data collection and analysis, and multivariate empirical analyses at both the individual and school level to fully explore the complex interrelationships embedded within our data.

These strengths notwithstanding, certain limitations of our study should be borne in mind. A first limitation pertains to measurement. On the independent variable side, our measures for the most part were ad hoc in nature, a common characteristic of expectancy and goal setting theory studies. As a result, very little is known about their construct validity. Additionally, operationalizing expectancy theory requires the use of multiplicative combinations of variables, which in turn exacerbates unreliability of measurement. We suspect that such unreliability is the major cause of the weak relationship of expected value of outcome measures to school performance. Our finding that schools in which teachers value the rewards associated with the SBPA program do not appear to have higher levels of performance may be more a reflection of measurement error and research design than of a lack of a substantive relationship.

Measurement concerns also surface in the case of our student achievement measures at the school level. We relied upon existing achievement measures used by the Kentucky and CMS SBPA programs. We had no reliability or validity data for the CMS measures. The information available for Kentucky's KIRIS gain scores (Kentucky Department of Education, 1997) suggests that while they are fairly reliable, they are subject to a non-negligible degree of measurement error. In turn, this may have attenuated the predictive relationships between teacher motivation and subsequent school success. (See Milanowski,

1999 for a discussion of how the reported level of reliability affects the categorizations of schools as eligible for receiving a performance reward.)

A second major limitation is our lack of control or comparison groups. The ideal situation would have been to study our three SBPA programs alongside identical programs without key features such as the bonus. By studying only sites that had SBPA programs, we had to rely on naturally occurring variation within these programs (such as differences in teacher expectancy, perceived probability of receiving a bonus after meeting goals, and outcome desirability) to infer how "motivational" the program was and to estimate the impact of teacher motivation on subsequent school success in meeting achievement goals. The availability of comparison or control groups would have allowed us to better pinpoint the true magnitude of the SBPA's impact on teacher motivation and the impact of teacher motivation on school success.

A third limitation pertains to the generalizability of our findings. One constraint on generalizability is the time-bound nature of our data. The data were gathered midstream during the operation of the SBPA programs, and it is uncertain whether our data and resultant relationships would have been the same at either earlier or later points in time. For example, the CMS data were gathered as the Benchmark Goal Program was undergoing a transition to integration with a statewide accountability plan. Now that the integration has been completed, we are uncertain as to how well our results generalize to this new circumstance. In the case of Kentucky, we gathered our data at the time of substantial controversy over the KIRIS testing process; had we gathered our data a year earlier, prior to the controversy, teachers' responses might have been very different. Another constraint on generalizability is the nature of our samples and their accompanying demographic and SBPA program characteristics. Though we sampled carefully within our jurisdictions, thus enhancing generalizability to our jurisdiction populations, we have no way of knowing how well our results might generalize beyond the sites we studied to other samples and other SBPA programs.

CONCLUSIONS AND IMPLICATIONS

Despite these limitations, our data suggest that SBPA programs are a potentially useful tool for policymakers and administrators who are interested in focusing teachers, principals, and educational systems on improving student performance. However, the full potential may be difficult to achieve, due to the complexity of designing and implementing SBPA programs effectively. We found that the programs we studied had mixed success in fulfilling the conditions that our motivational model suggests are important. Teachers reported that they understood program goals and were committed to them. The programs appear to have a focusing effect on teaching practice, collaboration and teamwork, and resource alignment. Although most teachers reported trying to reach the goals, many were skeptical about continuing to reach ever-rising goals. This skepticism was higher in schools that had previously met their goals.

Teachers associated both desirable and undesirable outcomes with the program, and teachers indicated that they valued both intrinsic and extrinsic outcomes. The outcomes grouped into four clusters: Goal Attainment, Learning, Stress and Sanctions. Outcomes in the first two clusters received high desirability ratings and outcomes in the last two clusters received low desirability ratings. The most desirable outcomes included personal satisfaction, seeing students learn new skills, having clear goals, and receiving a bonus. Least desirable outcomes included public criticism or embarrassment, additional pressure and job stress, and risk to job security. It is important to note that intrinsic outcomes such as personal satisfaction from achieving the goals were as likely and as valuable to teachers as the extrinsic, formal elements of the programs (e.g. the bonus), and that teachers who rated intrinsic outcomes as highly desirable did not rate receiving a bonus as undesirable. Bonuses per se do not seem to be seen by these teachers as antithetical to the intrinsic motivators of the teaching job. Increased job stress, a potential consequence of trying to reach the goals, was also seen as about as unfavorable by teachers as the bonus was seen as favorable.

While Kentucky teachers found the bonus per se desirable, they were not, on average, highly in favor of having the bonus program continue, nor was their self-reported motivation by the bonus high.

Teachers reporting higher levels of motivation from the bonus and a desire to see it continue tended to be those who were dissatisfied with their current salary, felt that use of bonuses and the bonus process was fair, and felt that teachers should decide how to divide up the bonus money. Those who reported a greater desire to withdraw from the bonus program were those who saw the program as less fair.

While the desirability of receiving a bonus was rated relatively highly, teachers were less than certain that achieving the goals would lead to receiving the bonus. Teacher expectancy proved to be the primary predictor of subsequent school success, and yet teachers' expectations that their efforts would result in goal achievement were weaker than expected. Teachers reported higher levels of individual and group expectancy in schools in which teachers perceived stronger assessment data feedback mechanisms, principal support or professional community, lack of goal conflict, and higher levels of perceived fairness of the program. Past performance in the program was important as well: teachers in schools with a history of success with the program reported higher levels of expectancy.

These findings suggest that successful SBPA programs involve more than promising bonuses to teachers if performance goals are met. As the motivation model implies, making a group reward program work is a complex undertaking, requiring attention to all five elements of the motivation model for it to work (expectancy, instrumentality, valence, teacher competencies and enabling conditions). Because of this complexity, SBPA programs are not likely to be successful unless considerable attention is paid to their design, management and evaluation. The Kentucky and CMS programs were school-based, rewarded continuous improvement, included ongoing adjustments to address program fairness, and were part of more comprehensive reform strategies. However, they offered relatively small bonuses, suffered from political instability, and lacked sufficient attention to the creation of enabling conditions. It is important to note that the level of success of group reward programs varies in the private sector as well. It appears that a sizable minority of group incentive programs implemented in the private sector are judged unsuccessful (Abosch, 1998) or are discontinued (Bullock and Tubbs, 1990, Graham-Moore and Ross, 1990). The complexity of group reward programs is also illustrated by the fact that the private

sector literature has tended to be cautious in recommending adoption when critical context conditions are not met (e.g. Wilson and Phalen, 1996, Orens and Elliott, 1997, Graham-Moore and Ross, 1990).

Several other important policy implications for the design and implementation of SBPA programs emerge from our research, as well as private sector research on bonus systems. Here, we focus on the importance of teacher expectancy and enabling conditions, and some key issues for further exploration.

Teacher confidence that effort will lead to goal achievement was a critical predictor of school success in our data. Yet expectancy was relatively low in both programs that we studied. Our data suggest that providing more positive organizational contexts that support goal achievement could enhance expectancy. An SBPA program should be one element of a comprehensive strategy to align resources and focus efforts on goal achievement. First, these efforts should include, but not be limited to providing meaningful and timely data to teachers on past performance, and training in how to interpret and utilize the information to improve teaching practice.

Second, district and school leadership and policy reform efforts should consistently provide teachers with clear direction about what goals are valued, and a clear path toward goal achievement. Private sector literature has recognized the importance of the active commitment of site managers to the success of group reward programs (Bennett, 1998, Masternak, 1997, Graham-Moore and Ross, 1990, Ross et al, 1992). Managers in successful programs seem to make the program central to their management efforts, and generate continuous interest and enthusiasm for the program. In both the Kentucky and CMS programs, this important role fell to principals, who may have had little or no guidance from the district or state as to how to carry it out. In our site interviews, there appeared to be a high level of variability in the extent to which the Kentucky and CMS principals "pushed" the program. While some were very proactive, others seemed genuinely at a loss as to how to rally their staff around the goals.

Third, fairness was a key predictor of teacher expectancy, but average perceptions of program fairness were not high in either program we studied. As was the case in our data, private sector research is clear on the importance of perceptions of fairness on the motivational impact of reward programs

(Welbourne and Gomez-Mejia, 1995, Cooper et al, 1992, Lawler, 1988, Hatcher et al, 1991, Gross and Barcher, 1993). It may be necessary to expend considerable effort explaining the rationale behind the performance measures, the level of the improvement goals, and the mechanics of the program to teachers to establish a basis for fairness perceptions. Reliability and "face validity" of assessments of student achievements and other measures of school performance are also likely to be crucial. Both the Kentucky and CMS programs included features to address fairness, such as setting goals based on growth from each individual school's baseline scores, requiring improvements in high and low performing students, and in the case of CMS, attention to race equity issues. However, our research suggests that both programs needed to invest additional effort in enhancing perceptions of program fairness.

Participation in program design and implementation by affected staff may also be a promising way to improve fairness perceptions and to ensure that improvement goals are not set too high as to seem unattainable, as well as to promote understanding and "buy-in" to the program. Again, private sector research (Bullock and Tubbs, 1990, White, 1979, Abosch, 1998) and prescription (O'Neill and Lough, 1994, Wilson and Phalen, 1996) emphasize the importance of participation in design and implementation. Kellor and Odden (1999) describe a participative process used to design an SBPA program for the Cincinnati school district.

We found a number of surprises in our data that suggest the need for further research and exploration. First, the connection between rewards and goal achievement was weak, and teacher instrumentality perceptions were low. Providing a consistent source of funding for, and a commitment to paying the bonus when it is earned might strengthen teacher perceptions of the achievement-bonus link. The recent experience in North Carolina is a good example of such a commitment. When that state's SBPA program was implemented in 1997, about $80 million was budgeted for the awards. Because more schools than expected met their improvement targets, full funding required $120 million. Rather than scaling back the level of the awards, the legislature increased the budget to pay all teachers in improving schools the awards that they had been promised (Johnson et al, 1999).

Second, teachers indicated that the bonus was a weak motivator of performance. Additional research is needed to examine what effect a larger bonus might have. While the bonuses used in Kentucky and CMS were close to the lower end of the 3-5% of base pay range common to private sector programs (McAdams and Hawk, 1994) our interviews with CMS teachers suggest that on average this was not perceived as a significant amount. To reach a meaningful threshold for most teachers, larger bonuses may be needed. However, some reports (Hall and Caffarella, 1997; Kelley, 1996; Kellor and Odden, 1998) suggest that teachers in some situations do see smaller bonuses as significant. The difference may be that in these cases, differences in program design may have reduced negative outcomes associated with program participation, improving the overall motivational power of the program. Additional research is needed to explore the effects of larger bonuses on teacher motivation and student achievement.

Third, the proxies for knowledge and skills did not prove to be significant predictors of expectancy in our models. Nonetheless, many reformers have suggested that teachers lack the skills they need to teach to high standards (e.g. Con, 1996, National Commission on Teaching and America's Future, 1996). Thus, additional professional development and knowledge and skill-based pay incentives provide promising avenues to encourage teachers to develop knowledge and skills and thereby enhance teacher expectancy to improve student performance. Additional research and experimentation is needed to examine how knowledge and skill-based pay plans may be linked to SBPA programs to reward teachers both for the development of their own knowledge and skills as well as for outcomes produced.

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Table 1. Means and Standard Deviations of Responses on Goal-Related Scales

	CMS Mean	CMS Std. Deviation	Kentucky Mean	Kentucky Std. Deviation
Goal Commitment	3.9	0.8	3.9	0.7
Goal Clarity	3.4	1.0	3.6	0.8
Goal Conflict	2.8	1.0	3.2	1.1

Note: Ratings are on a scale of 1 to 5.

Table 2. Teacher Performance Goal Targets in CMS and Kentucky

CMS During this year, did you:	All Respondents	Respondents in Schools Rewarded in Prior Year	Respondents in Schools Not Rewarded in Prior Year
not try to achieve goals	5.6	3.5	7.5
try to avoid decline in student performance measures	7.2	7.5	7.0
try to achieve "Outstanding" status (partial reward)	13.4	9.3	17.1
try to achieve "Exemplary " status (full reward)	73.8	79.6	68.4
Kentucky **During this year, did you:**	**All Respondents**	**Respondents in Cycle 2 Reward Schools**	**Respondents in Cycle 2 Nonreward Schools**
not try to achieve goals	1.5	2.2	1.2
try to avoid decline in KIRIS scores	10.0	7.3	11.6
try to achieve "Improving" Status	10.8	6.3	13.6
try to achieve "Successful" Status	24.4	12.0	32.2
try to achieve "Reward" Status	53.4	72.2	41.4

Table 3. Percentages of Teachers Indicating Goals Were Becoming Harder to Achieve

	Reward Prior Cycle	Nonreward Prior Cycle
Percent of CMS respondents indicating that:		
this year's goals are much or somewhat harder	67.4	43.5
next year's goals will be much or somewhat harder	59.5	44.1
Percent of Kentucky respondents strongly agreeing or agreeing that:		
this cycle's goals will be harder to achieve	73.5	63.5
next cycle's goals will be even harder to reach	70.9	65.7

Table 4. Desirability of Outcomes Associated with School-Based Performance Award Programs

Outcome	CMS Mean	CMS Std. Deviation	Kentucky Mean	Kentucky Std. Deviation
Goal Attainment Rewards				
Personal satisfaction from improved student performance	4.6	0.6	4.4	0.6
Receiving a bonus (a)	4.5	0.7	4.1	1.1
Receiving funds for school improvement	4.4	0.7	4.1	0.9
Personal satisfaction of meeting goals	4.3	0.8	4.2	0.8
Public recognition for meeting goals	4.1	0.9	4.0	0.9
Learning				
Having your students learn new skills	4.5	0.6	4.4	0.7
Having clear school-wide goals	4.4	0.7	4.3	0.7
Working cooperatively with other teachers on curriculum and instruction	4.3	0.7	4.0	0.8
Having additional opportunities for professional development	4.3	0.7	3.9	0.8
Sanctions				
Public criticism or embarrassment due to not achieving goals (b)	4.4	1.2	1.6	0.8
Risk to job security (b)	3.9	1.1	1.6	0.8
Intervention (b)(c)	3.7	1.3	1.8	1.0
Loss of professional pride due to not achieving goals (b)	3.6	1.2	1.8	0.8
Stress				
Putting in more hours	2.0	0.9	1.9	0.9
Less freedom to teach things unrelated to goals	2.0	0.9	1.9	0.9
More pressure and job stress	1.6	0.8	1.5	0.8

(a) $1,000 in CMS, $2,000 in Kentucky
(b) CMS respondents were asked to rate the desirability of avoiding these outcomes, while Kentucky respondents were asked to rate the desirability or undesirability of the outcomes themselves.
(c) CMS respondents were asked about having their school designated a Priority School, while Kentucky respondents were asked about having a Distinguished Educator assigned to their school.

Source: Heneman & Milanowski, 1999

Table 5. Average Perceived Probability of Outcomes Associated with SBPA Programs

Outcome	Probability if School Meets Goals		Probability if You Try to Meet Goals		Probability if School Does Not Meet Goals	
	CMS	KY	CMS	KY	CMS	KY
Goal Attainment Rewards						
Receiving a bonus (a)	72.8	54.8				
Personal satisfaction of meeting goals	79.4	73.9				
Personal satisfaction from improved student performance	78.9	73.6				
Public recognition for meeting goals	67.6	62.1				
Receiving funds for school improvements	45.2	49.6				
Learning						
Working cooperatively with other teachers on curriculum and instruction			72.9	71.5		
Feel you are working toward clear school-wide goals			73.6	63.3		
Having additional opportunities for professional development			63.5	68.5		
Having your students learn new skills			54.6	59.9		
Stress						
More pressure and job stress			73.6	84.4		
Putting in more hours			65.8	81.9		
Less freedom to teach things unrelated to goals			68.9	74.9		
Sanctions						
Public criticism or embarrassment due to not achieving goals					53.8	68.6
Intervention					46.5	75.9
Loss of professional pride due to not achieving goals					44.9	61.0
Risk to job security					31.8	50.2

(a) $1,000 in CMS, $2,000 in Kentucky.

Source: Heneman & Milanowski, 1999

Table 6. Teachers' Perceptions about the Fairness of the SBPA Programs

Item	CMS Mean[a]	CMS Std. Deviation	Kentucky Mean[a]	Kentucky Std. Deviation
Fair to hold teachers accountable for student achievement.	3.3	1.1	2.5	1.2
Fair for teachers who increase student achievement to get a bonus.	3.6	1.1	2.8	1.2
School has a fair chance to win award (2 item scale)	2.8	1.2	2.9	1.1
Program is procedurally fair (3 item scale)	2.6	0.9	2.4	0.9

(a) Response scale was 1=Strongly Disagree...5=Strongly Agree.

Table 7. Average Individual and Group Expectancy: Kentucky and CMS Teachers

	Kentucky Average *	Kentucky Std. Deviation	CMS Average*	CMS Std. Deviation
Individual Expectancy – Reward	39.2	26.8	55.6	29.5
Group Expectancy – Reward	52.7	27.3	62.0	29.1
Individual Expectancy- Avoid Decline	44.5	27.1	-	-
Group Expectancy - Avoid Decline	60.9	27.3	-	-

* Response scale ranged from 0 (Highly Unlikely) to 100 (Highly Likely) in 10 point steps.

Table 8. Regression Estimates (Standardized Coefficients) of Factors Affecting Teacher Individual Expectancy Perceptions in CMS and Kentucky

	Teacher Expectancy (Charlotte-Mecklenburg)	Teacher Expectancy (Kentucky) Model 1	Model 2
School Characteristics			
High School	-.235***	-.074*	-.072*
Middle School	-.083**	-.036	-.029
School Size	.060	-.004	-.013
Free Lunch	-.023	-.028	-.040
Reward History	.031	.148***	.137***
Organizational Context			
Feedback	.175***	.173***	.179***
Alignment	-.016	-.016	-.023
Community (a)	.021	.112***	
Community (b)			.121***
Participation	-.002	.043	.028
Principal Support	.110**	.010	.034
Goal Conflict	-.051	-.102***	-.088***
Teacher Attitudes			
Fairness	.269***	.205***	.233***
Goal Clarity	.048	-.038	-.053
Teacher Characteristics			
Experience	-.020	.008	.009
Education	-.047	-.049	-.042
N	900	1393	1384
Model R-squared	.237	.291	.296

*** Statistically Significant at the .01 Level
** Statistically Significant at the .05 Level
* Statistically Significant at the .10 Level

(a) Same question as in CMS
(b) Augmented scale with additional questions

Source: Kelley, 1999

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Table 9. The Effect of Teacher Expectancy and Expected Outcome Value (Instrumentality times Valence) on School Performance

CMS (n=114 schools)	Controls Only	Value of Bonus	Goal Attainment	Learning	Sanctions	Stress	All 4 Types of Outcomes
Log Enrollment	-.337***	-.275***	-.267***	-.279***	-.291***	-.276***	-.307***
Percent Free/Reduced Lunch	-.528***	-.522***	-.514***	-.481***	-.508***	-.533***	-.484***
Expectancy		.265***	.318***	.374***	.295***	.301***	.369***
Expected Value of Bonus		.051					
Goal Attainment Outcomes			-.053				.049
Learning Outcomes				-.177*			-.183
Sanctions					.134		.132
Stress Outcomes						-.145*	-.158*
R-Squared	.199	.281	.281	.299	.295	.299	.338

Kentucky (n=204 schools)	Controls Only	Value of Bonus	Goal Attainment	Learning	Sanctions	Stress	All 4 Types of Outcomes
Log Enrollment	-.143**	-.129**	-.142**	-.145**	-.134***	-.145**	-.129*
Percent Free/Reduced Lunch	-.484***	-.496***	-.512***	-.523***	-.517***	-.519***	-.514***
Cycle 2 KIRIS Index	-.601***	-.710***	-.732***	-.740***	-.680***	-.728***	-.727***
Expectancy		.290***	.283***	.251***	.222***	.266***	.298***
Expected Value of Bonus		-.137**					
Goal Attainment Outcomes			-.087				-.140
Learning Outcomes				-.015			.098
Sanctions					-.068		-.082
Stress Outcomes						-.088	-.040
R-Squared	.283	.342	.333	.328	.326	.334	.345

*** Statistically Significant at the .01 Level
** Statistically Significant at the .05 Level
* Statistically Significant at the .10 Level

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APPENDIX A

Table A1. Items Combined to Produce Goal Commitment, Goal Clarity, Goal Focus, and Goal Conflict Scales and the Internal Consistency Reliability of the Scales

Scale and Items	Coefficient Alpha
Goal Commitment	
CMS	.73
It's hard to take the Benchmark Goals seriously. (scale reversed)	
I am strongly committed to pursuing my school's Benchmark Goals.	
Quite frankly, I don't care if my school achieves its Benchmark Goals or not. (scale reversed)	
Kentucky	.74
It's hard to take the accountability goals seriously. (scale reversed)	
I am strongly committed to pursuing my school's accountability goals.	
Quite frankly, I don't care if my school achieves its accountability goals or not. (scale reversed)	
Goal Clarity	
CMS	.90
I have a clear understanding of what my school's Benchmark Goals are.	
I know how much each aspect of student achievement needs to improve in order to reach the Benchmark Goals for this year.	
I have a good understanding of how student achievement related to the Benchmark Goals is measured in the subject(s) I teach.	
I could explain my school's Benchmark Goals to others if asked.	
Kentucky	.85
I have a clear understanding of what my school's accountability goals are.	
I know how much each aspect of student achievement needs to improve in order to reach the accountability goals for this cycle.	
I have a good understanding of how student achievement is measured by KIRIS in the subject(s) I teach.	
I could explain my school's accountability goals to others if asked.	
Goal Focus	.69
Kentucky	
The accountability goals provide a focus for my teaching efforts.	
The accountability goals tell us what is most important for the school to accomplish.	
Goal Conflict	
CMS	.75
This year's Benchmark Goals conflict with other important goals of our school.	
Working toward our school's Benchmark Goals prevents me from working toward other important educational goals.	
Kentucky	.80
The accountability goals conflict with other important goals of our school.	
Working toward our school's accountability goals prevents me from working toward other important educational goals.	

Table A2. Items Combined to Produce Fairness of SBPA Programs Scales and the Internal Consistency Reliability of the Scales

Scale and Items	CMS Coefficient Alpha	Kentucky Coefficient Alpha
School has a fair chance to win award (2 item scale)	.78	.71
Our school has as much chance of being a reward school as any other.		
Our school has less chance of achieving its accountability goals than others because of our student population (scale reversed).		
Program is procedurally fair	.85	.84
As a way to measure school performance, the accountability goals are fair.		
The way our school's accountability goals were established is fair.		
Overall, the way the accountability program is run is fair.		

Table A3. Items Used in Scales for Analysis of Teacher Expectancy

Dependent Variables:

Individual Teacher Expectancy

CMS: If you were to make the highest level of effort you would be comfortable with (that you could sustain for the whole year), what is the probability or likelihood of you school meeting its Benchmark Goals? (0%, 10%, 20%,. . . 100%)

Kentucky: What is the chance, probability, or likelihood that if you personally were to make the highest level of effort you could, your school would exceed its accountability goals by enough to be a "Reward" school? (0%, 10%, 20%,. . . 100%)

Teacher Group Expectancy:

CMS: If you and your colleagues were to work together as hard as you could, what is the probability or likelihood of you school meeting its Benchmark Goals? (0%, 10%, 20%, . . . 100%)

Kentucky: What is the chance, probability, or likelihood that if you and your colleagues were to work together as hard as you could, your school would exceed its accountability goals by enough to be a "Reward" school? (0%, 10%, 20%, . . . 100%)

Independent Variables:

School Characteristics:

School Size: Student Headcount Enrollment
Free Lunch: Percent Free and Reduced Lunch
Reward History: for CMS, 1995-96 performance on the Benchmark Goals (Reward=1, Nonreward=0); for Kentucky: Cycle 2 performance on the Kentucky School-Based Accountability Program (Reward=1, Nonreward=0)

Enabling Conditions: Scales created from responses to the following five-point likert scale questions:

Feedback
CMS: Concerning the feedback you receive about the Benchmark Goals Program, to what extent:
- Do you receive the results of the tests or other assessments that are used to measure whether your school achieved its Benchmark Goals in the subjects you teach?
- Do you know how to interpret the results of the assessments related to the Benchmark Goals?
- Are the results of these assessments useful to you in figuring out how to help achieve your school's Benchmark Goals?

Kentucky: Concerning the feedback you receive about the accountability goals, to what extent:
- Do you receive KIRIS results relevant to the subjects you teach?
- Do you know how to interpret the results of the KIRIS assessments in relation to the accountability goals?
- Are the results of the KIRIS assessments useful to you in figuring out how to help achieve your school's accountability?

Alignment
At your school, to what extent:

CMS
- Are teachers evaluated based on their efforts to achieve the school's Benchmark Goals?
- Are new curriculum development efforts linked to the Benchmark Goals assessment?
- Are teachers provided time to plan together about how to achieve the Benchmark Goals?

- Has your school mobilized its resources to meet its Benchmark Goals?
- Do professional development activities in your school focus on helping you acquire knowledge and skills related to meeting the Benchmark Goals?

Kentucky
- Are teachers evaluated based on their efforts to achieve the school's accountability goals?
- Are new curriculum development efforts linked to KIRIS?
- Are teachers provided time to plan together about how to achieve the accountability goals?
- Has your school mobilized its resources to meet its accountability goals?
- Do professional development activities in your school focus on helping you acquire knowledge and skills related to meeting the accountability goals?

Community (a): At your school, to what extent do teachers in your school work together to improve teaching knowledge and skills?

Community (b) (for Kentucky only):
At your school, to what extent do teachers in your school work together to improve teaching knowledge and skills?
Do teachers seek the advice of other teachers when they have a teaching problem?
Do teachers discuss ideas about how to improve teaching and student learning among themselves?
Do teachers share a vision of student learning and what it takes to accomplish it?
Do teachers hold one another accountable to work hard to increase student learning?

Teacher Participation (both sites): At your school, to what extent:
- Do teachers make important decisions about curriculum and instruction?
- Do teachers make important decisions about the allocation of the school's budget?
- Do teachers make important decisions about the hiring of new teachers?
- Are teachers provided with the information they need to participate meaningfully in school-level management decisions?

Principal Support
To what extent is your school's principal:

CMS
- committed to achieving your school's Benchmark Goals?
- supportive of your efforts to achieve the school's Benchmark Goals?
- willing to work with teachers to help them understand how to achieve the Benchmark Goals?

Kentucky
- committed to achieving your school's accountability goals?
- supportive of your efforts to achieve the school's accountability goals?
- willing to work with teachers to help them understand how to achieve the accountability goals?

Goal Conflict (extent of agreement or disagreement with the following statements)

CMS:
- This year's Benchmark Goals conflict with other important goals of our school.
- Working toward our school's Benchmark Goals prevents me from working toward other important educational goals.

Kentucky:
- The accountability goals conflict with other important goals of our school.
- Working toward our school's accountability goals prevents me from working toward other important educational goals.

Teacher Attitudes: Scale created from responses to the following five-point likert scale questions:
Fairness
(extent of agreement or disagreement with the following statements):
CMS
- The way our school's Benchmark Goals were established was fair.
- As a way to measure school performance, the Benchmark Goals are fair.
- Overall, the way the Benchmark Goals program is run is fair.

Kentucky
- The way our school's accountability goal was established was fair.
- As a way to measure school performance, the accountability goals are fair.
- Overall, the way the accountability program is run is fair.

Goal Clarity
(extent of agreement or disagreement with the following statements):

CMS
- I have a clear understanding of what my school's Benchmark Goals are.
- I know how much each aspect of student achievement needs to improve in order to reach the Benchmark Goals for this year.
- I have a good understanding of how student achievement related to the Benchmark Goals is measured in the subject(s) I teach.
- I could explain my school's Benchmark Goals to others if asked.

Kentucky
- I have a clear understanding of what my school's accountability goals are.
- I know how much each aspect of student achievement needs to improve in order to reach the accountability goals for this cycle.
- I have a good understanding of how student achievement is measured by KIRIS in the subject(s) I teach.
- I could explain my school's accountability goals to others if asked.

Teacher Characteristics

Experience: Total number of years of teaching experience.
Education: 1= Highest degree obtained is MA/MS, MA/MS plus credits, or EdD or PhD, else = 0

Source: Kelley, 1999

Table A4. Means, Standard Deviations, and Intercorrelations of School-Level Variables

I. Charlotte-Mecklenburg

	Mean	Std. Dev.	1.	2.	3.	4.	5	6	7	8
1. Goal Points	50.21	15.73								
2. Log Enrollment	6.51	0.44	-0.280							
3. Percent Free/Reduced Lunch	38.25	0.18	-0.382	-0.518						
4. Expectancy	56.58	12.88	0.280	-0.171	0.049					
5. Bonus	1.17	0.31	0.175	-0.012	-0.028	0.453				
6. Goal Attainment Outcomes	3.85	0.96	0.047	-0.078	0.136	0.515	0.788			
7. Learning Outcomes	5.22	1.00	-0.716	-0.248	0.285	0.500	0.411	0.645		
8. Sanctions	-1.30	0.83	0.146	0.230	-0.213	-0.097	-0.145	-0.174	-0.221	
9. Stress Outcomes	-2.52	0.74	-0.093	-0.017	-0.037	0.088	-0.014	-0.013	0.018	0.093

II. Kentucky

	Mean	Std. Dev.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. KIRIS Index Change	4.09	4.70										
2. Log Enrollment	6.21	0.49	0.063									
3. Percent Free/Reduced Lunch	46.93	20.80	-0.144	-0.393								
4. Cycle 2 KIRIS Index	44.80	6.56	-0.369	-0.021	-0.472							
5. Expectancy- Exceeding Goals	39.00	14.35	-0.057	-0.076	-0.110	0.500						
6. Expectancy- Avoiding Decline	44.60	12.40	0.003	-0.104	-0.042	0.355	0.855					
7. Bonus	0.64	0.04	-0.024	-0.016	0.021	0.303	0.413	0.435				
8. Goal Attainment Outcomes	2.97	1.09	-0.158	-0.080	0.029	0.280	0.481	0.512	0.853			
9. Learning Outcomes	4.36	1.24	-0.112	-0.199	0.011	0.316	0.451	0.446	0.548	0.721		
10. Sanctions	-3.57	1.02	-0.113	-0.007	-0.116	0.223	0.277	0.206	0.075	0.112	0.236	
11. Stress Outcomes	-3.26	0.83	-0.165	-0.073	-0.037	0.259	0.309	0.291	0.322	0.401	0.393	0.472

Figure 1. A Model of Teacher Motivation

Source: Heneman, 1998